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HELMINTHS AND PLANT NEMATODES OF MOROCCO,

Prepared from Helminthological Abstracts 1932 - 1971

ANNOTATED BIBLIOGRAPHY NO. 6

COMMONWEALTH INSTITUTE OF HELMINTHOLOGY

310—Archives de l'Institut Pasteur du Maroc.

*a. BALTAZARD, M., 1932.—"Contribution à l'étude de la bilharziose vésicale au Maroc." 1, 29–104.

68—Medicina de los Países Cálidos.

b. LANDAZURI, E. O., de.—" Parasitismo intestinal en la zona del Protectorado de Espana en Marruecos." v (3), 211-217, 14 refs. [May, 1932.]

(b) De Landazuri gives results of a helminthological survey of the indigenous population in the Spanish zone of Morocco. *Trichuris* was present in 45 per cent. of persons examined (mostly patients at the Tetuan hospital) and *Ascaris* in 16 per cent. An important negative finding was the absence of hookworm. B.G.P.

106—Archives de l'Institut Pasteur d'Algérie.

a. VIALATTE, C.—" La bilharziose vésicale au Maroc. Le foyer d'Erfoud." x (2), 157-159. [June, 1932.]

(a) Vialatte reports the occurrence of vesical Bilharziasis in four Europeans who contracted the disease at Erfoud in Morocco. He states that previously Dr. Crozes had found 4.1 per cent. of the Mohammedan population there infected and had attributed this to bathing in the "séguia." The Europeans were infected apparently from bathing in the Ziz waters. R.T.L.

340—Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord.

a. DOLLFUS, R. P. & MONOD, T.—" *Hoplodontophorus flagellum* (Ehrenb.) chez *Procavia antineae* Bégouen et H. Heim de Balsac au Hoggar." XXIV, 327-341. [1933.]

(*a*) Dollfus and Monod found 5 males and many 4th stage larval females of *Hoplodontophorus flagellum* in the rectum of a preserved specimen of *Procavia antineae*. They discuss the anatomy of the head region, describe in detail the structure of the male caudal appendages, particularly the ventral sucker and give an account of the ensheathed 4th stage females. The paper is illustrated with one photograph and 18 text figures including a map showing the geographical distribution of host and parasite. There is a table showing the parasites of *Procavia* species and a bibliography of papers thereon. T.G.

342—Bulletin de la Société des Sciences Naturelles du Maroc.

a. DORIER, A.—" Sur une petite collection de Gordiacés du Maroc rassemblée par Robert-Ph. Dollfus." XIII (1/3), 109-111. [1933.]

(a) Dorier has examined a small collection of Gordiids assembled by R.Ph. Dollfus from Morocco. The following species are represented :— *Gordius aquaticus* Duj., *G. Pioltii* Cam., *G. obesus* Cam. and an incomplete undetermined *Gordius* species. The author considers the first two forms very much alike, liable to be confused and therefore worthy of more detailed study. The localities of collection are mentioned. J.N.O.

582—Maroc Médical.

a. MARTIN & ARNAUD.—" Epidémiologie de la 'maladie hydatique' au Maroc. Première partie. L'échinococcose humaine." XV (158), 307-311. [1935.]

b. VELU, H. & SARTHOU.—" Epidémiologie de la 'maladie hydatique' au Maroc. Deuxième partie. L'échinococcose du bétail au Maroc." XV (158), 312-318. [1935.]

(582a) Martin & Arnaud have investigated the epidemiology of echinococcosis in Morocco and, from a statistical survey of human hospital cases, have found the disease to be comparatively rare. Women are more frequently parasitized than men and children and the areas most heavily infected correspond with those where cattle, in which sterile cysts are rare, are most frequently pastured. J.N.O.

(582b) Velu & Sarthou, in a survey of animal echinococcosis in Morocco based on abattoir statistics, find that heavy infestation of sheep and cattle is confined to areas which have a high rainfall and where cattle rearing is largely practised. Where cattle are scarce or absent, as in the drier regions of the South, sheep are but lightly infected. In sheep, calcification of the cyst, more especially in the liver than in the lungs, appears to be a normal process, whereas in cattle this process, particularly in the lungs, is exceptional ; cattle, therefore, are considered to be much more dangerous than sheep. The authors consider the rôle of the carnivore very important in the epidemiology of echinococcosis and believe that the frequency of infection in herbivores is linked up with the infested pariah dogs which frequent the villages. J.N.O.

317—Comptes Rendus des Séances de la Société de Biologie.

d. BLANC, G. & DESPORTES, C., 1936.—"La bilharziose bovine au Maroc." 123 (32), 766-767.

(317d) Blanc & Desportes confirm the occurrence of *Schistosoma bovis* and of its intermediary *Bullinus contortus* in Gharb region of Morocco. R.T.L.

631—Revue du Service de Santé Militaire.

a. BLANCARDI, C. F. E. A., 1936.—"A propos d'un nouveau foyer de bilharziose vésicale marocaine." 105 (4), 547-559.

285—Bulletin de la Société de Pathologie Exotique.

a. NAIN, M., 1937.—"Note sur les indices d'endémicité de deux foyers de bilharziose vésicale marocaine." 30 (3), 237-238.

88—Bulletin de la Société de Pathologie Exotique.

c. ANDERSON, C., 1938.—"Contribution à l'étude de la bilharziose dans la région des Matmata. (Prospection de l'Oued Djir)." 31 (6), 498-502.

805—Bulletin de l'Institut d'Hygiène du Maroc.

*a. MARILL, F. G., ALCAY, L. & MUSSO, J. C., 1940.—"Contribution à l'étude épidemiologique des foyers marocains de bilharziose urinaire du Tafilalet, du Draa et du Sous. Leur importance comme source de diffusion de la schistosomiase." 10, 5-16.

*b. BARNEOUD, J. & GAUD, J., 1940.—"La bilharziose vésicale dans le territoire du Tafilalet." 10, 17-29.

66—Bulletin de l'Institut d'Hygiène du Maroc.

a. BECMEUR, A., 1943.—"Deux ans de lutte contre l'ankylostomiase dans les mines de l'Office Chérifien des Phosphates." New Series, 1 (Année 1941), 45-53.

(66a) Ancylostomiasis was reported from the Khouribga phosphate mines for the first time in 1937, and investigations carried out in 1938 showed that infestation was widespread among the miners. Nothing was done in 1939, but in 1940 and 1941 steps were taken to combat the disease. Treatment with tetrachlorethylene and improvement of the sanitary conditions resulted in eradication of ancylostomiasis by the end of 1941, with the exception of 109 lightly infested carriers with less than 10 eggs per c.c. of faeces. A.J.F.

73—Fruits et Primeurs de l'Afrique du Nord.

a. BRICHET, J., 1943.—"Anguillules—nematodes—hétérodères. Parasites dangereux dont l'extension menace les cultures fruitières et maraîchères." 13 (135), 68-72.

(73a) Brichet gives a general account of the root-knot nematode, *Heterodera marioni*, with special reference to it as a parasite affecting garden and fruit crops in North Africa. The paper is largely a compilation based on already established knowledge concerning the parasite published elsewhere, especially in U.S.A., and this indebtedness is duly acknowledged. He discusses a wide range of the practical aspects of the problems involved in attempts to control the parasite, and deals with soil treatment by heat and by chemicals, cultural operations, and the employment of resistant plants and resistant root stocks. T.G.

1186—Bulletin de la Société de Pathologie Exotique.

*b. JOYEUX, C. & BAER, J., 1943.—"Sur quelques helminthes du Maroc. Note préliminaire." 36 (3/4), 86-88.

*d. JOYEUX, C. & GAUD, J., 1943.—"La pneumonie vermineuse des ovins au Maroc. Note préliminaire." 36 (7/8), 232-235.

198—Bulletin de l'Institut d'Hygiène du Maroc.

a. GORSSE, P. & ACCART, R., 1944.—"Essai sur le traitement de la bilharziose vésicale." New Series, 3 (Année 1943), 5-57.

b. GAUD, J., SALM, G. & FASSI, F., 1944.—"Parasitisme intestinal chez les écoliers de Fès." New Series, 3 (Année 1943), 87-113.

(198a) Gorsse & Accart discuss the treatment of schistosomiasis in a general way, considering the signs of the disease which may be used to assess the efficiency of the treatment —clinical signs, presence of eggs in urine, humoral changes and endoscopic pictures must all be used together to give a balanced judgement. The drugs considered are tartar emetic, fouadin and anthiomaline. They review the work of many previous workers and add some of their own observations. P.A.C.

(198b) Gaud et al. have examined a section of the population of Morocco, including a large number of school children, for intestinal parasites. Five helminth species were demonstrated, 80% of the examinees being positive for one or more species. *Ascaris lumbricoides* and *Trichuris trichiura* were the most common, *Enterobius vermicularis*, *Taenia saginata* and *Hymenolepis nana* being much rarer. Infestation is much more frequent among children under 10 years of age than in any other group: the Arab children form a reservoir of infection of all the intestinal parasites. *H. nana*, though rare, was found as frequently in adults as in children. A large section of this article is devoted to the intestinal protozoa. P.A.C.

1326—Bulletin de l'Institut d'Hygiène du Maroc.

*a. BECMEUR, A., 1945.—"Situation de l'ankylostomiase du centre minier de Khouribga en 1945." n.s., 5, 75-83.

357—Bulletin de la Société de Pathologie Exotique.

a. HEIM DE BALSAC, H., 1945.—"Faits intéressant la pathologie et l'hygiène dans l'extrême Sud Marocain." 38 (1/2), 8.

(357a) Numerous foci of bilharziasis were observed in the valley of the Draa in South Morocco. No details are given. R.T.L.

311—Archives de l'Institut Pasteur du Maroc.

a. JOYEUX, C. & GAUD, J., 1945.—"Recherches helminthologiques marocaines." 3 (4), 111–143.

(311a) In this article Joyeux & Gaud give short accounts of 9 (8 adult and one larval) trematodes, 21 (19 adult and 2 larval) cestodes, and one acanthocephalan collected in Morocco. The parasites are also listed under their respective vertebrate hosts. None are new. R.T.L.

365—Bulletin de l'Institut d'Hygiène du Maroc.

a. GAUD, J., FAURÉ & SOLÉ, 1946.—"Variations dans le temps des index d'infestation humaine dans la bilharziose vésicale marocaine." 6, 55–60.
b. GAUD, J. & MAURICE, A., 1946.—"Foyers de bilharziose vésicale dans le Sous." 6, 61–62.

(365a) Striking variations which were observed in the incidence of urinary schistosomiasis in four foci in Morocco in successive years suggest that the disease may occasionally become epidemic. This depends on the abundance or rarity of the molluscan vectors. R.T.L.

(365b) In the Sous region of Morocco, in July 1947, urinary schistosomiasis was found in children at Km. 44 (10%), at Aït Baha (79%) and at Tanalt (86%). R.T.L.

169—Archives de l'Institut Pasteur du Maroc.

a. JOYEUX, C. & GAUD, J., 1946.—"Recherches helminthologiques marocaines. (Suite)." 3 (6), 383–461.

(169a) Joyeux & Gaud deal extensively with the history, geographical distribution, morphology, lesions, development and intermediate hosts of the lungworms *Protostrongylus rufescens*, *Cystocaulus ocreatus* and *Muellerius minutissimus* which give rise to verminous pneumonia. Of these *P. rufescens* and *M. minutissimus* are rare while *C. ocreatus* occurs everywhere in sheep and goats in Morocco. *Euparypha pisana* and *Cochlicella acuta* are the probable natural intermediaries. R.T.L.

142—Semaine des Hôpitaux de Paris.

a. LIGER & SCHNEYDER, R., 1946.—"Kystes hydatiques chez les indigènes Nord-Africains." 22 (27), 1280–1284.

(142a) Of 4 cases of hydatid of the lung seen at Amiens in North African tirailleurs, one ruptured into the bronchi and the remainder were only detected during routine radiography. In the latter, Weinberg's reaction was feebly positive in 2 and negative in one. Eosinophilia occurred in 2 and the Casoni reaction was positive in one only. R.T.L.

137—Revista de Sanidad e Higiene Pública.

a. RICO-AVELLO, C. & ANDRES, A. A., 1946.—"Encuesta epidemiológica sobre bilharziosis vesical en la fracción de Telata de Raisana (Jolot)." 20 (2), 111–140.

(137a) In Telata de Raisana vesical bilharziasis was found in 13·8% of the population, *Bulinus* being the main vector. The degree of infestation indicates that it is an important public health problem. There was a high cosinophilia among infested patients. The authors have considered some of the epidemiological factors involved. P.A.C.

546—Fruits et Primeurs de l'Afrique du Nord. Édition Marocaine.

a. COURANJOU, A., 1948.—"Un ennemi redoutable des jeunes orangers, l'anguillule des racines : 'slow decline' de Californie, 'spreading decline' de Floride." 18 (197), 374–375.

(546a) Couranjou gives a rather popular account of the citrus-root nematode, *Tylenchulus semi-penetrans*, as it affects orange trees in North Africa. D-D is recommended for control. T.G.

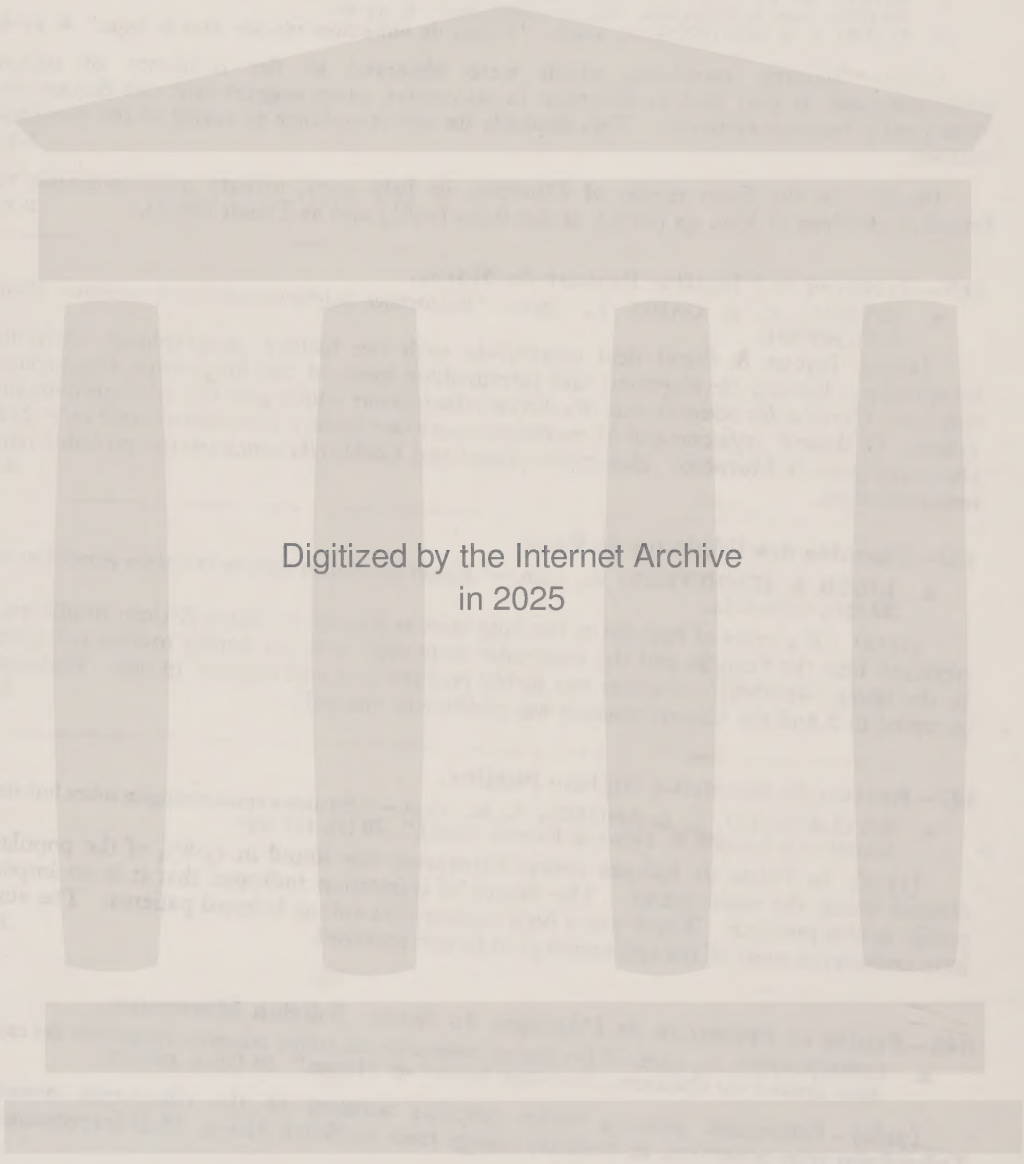
79—Bulletin de la Société de Pathologie Exotique.

k. DELANOE, E., 1948.—"Influence possible de l'infestation vermineuse sur la résistance des indigènes marocains à la tuberculose." 41 (5/6), 377–380. [Discussion p. 380.]

(79k) Delanoe associates the immunity to tuberculosis shown by the indigenous population of Morocco with the frequency of helminth, and particularly of cestode, infestations. R.T.L.

603—Bulletin de l'Institut d'Hygiène du Maroc.

a. FAURE, J., 1949.—"Contribution à l'étude de l'echinococcose dans la région de Marrakech." 9 (3/4), 211–232.



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266—Revista Ibérica de Parasitología.

a. LÓPEZ-NEYRA, C. R., 1949.—"La parasitología humana en el Marruecos español." 9 (4), 373–443. [English summary pp. 429–430.]

(266a) In a section on helminths, López-Neyra summarizes previously published work on helminths in man in Spanish Morocco. The species hitherto recorded are *Taenia solium*, *T. saginata*, hydatid, *Dicranotaenia* [*Hymenolepis*] *nana*, *Schistosoma haematobium*, *Ascaris lumbricoides*, *Trichuris trichiura*, *Enterobius vermicularis*, *Strongyloides stercoralis*, *Onchocerca volvulus* (possibly), and imported cases of *Loa loa* and *Wuchereria bancrofti*. R.T.L.

482—Revue Agricole de l'Afrique du Nord.

*a. MAGNEVILLE, A., 1949.—"Les 'plaies d'été des équidés'." 47, 119–120.
*b. MAUPOUME, R., 1949.—"La lutte contre les strongyloses ovines." 47, 402–403.

193—Encyclopédie Entomologique. Paris.

a. MIMEUR, J. M., 1949.—"Contributions à l'étude des zoocécidies du Maroc. Nématodes." 24, 17–23.

(193a) In Morocco *Heterodera marioni* is the only nematode parasite of plants which has been observed. A list of 42 plant hosts, with bibliographical references, follows a brief description of the parasite. R.T.L.

470—Revista Clínica Española.

a. OTERO GONZÁLEZ, L., 1949.—"Consideraciones a un caso di bilharziosis vesical en un niño español de Larache (Marruecos)." 32 (2), 108–114.

596—Gazette Médicale de France.

c. BECMEUR, LAFFERRE & LAMOTTE, 1950.—"L'ankylostomose dans les mines de phosphate marocain." 57 (17, Pt. II), 869–874.
d. BECMEUR, LAFFERRE & LAMOTTE, 1950.—"Les parasitoses intestinales en milieu indigène marocain." 57 (17, Pt. II), 875–880.

(596c) Becmeur *et al.* have carried out an extensive survey of ancylostomiasis in phosphate miners in Morocco. They find that the infestation is very widespread in Khouribga but not in Louis-Gentil. Didakène (tetrachlorethylene) was the only anthelmintic which they found to be effective. S.W.

(596d) Becmeur *et al.* report on the intestinal parasites found during their investigation into the incidence of ancylostomiasis [see preceding abstract]. The helminth incidence was: *Taenia saginata* very common, hydatid fairly common, Fasciola rare, *Schistosoma haematobium* common, *S. mansoni* very rare, Ascaris rare, Enterobius 70%, Trichuris very rare and Strongyloides 30%. S.W.

663—Maroc Médical.

a. CHENEBAULT, J., 1950.—"Note sur la fréquence du kyste hydatique du poumon au Maroc." 29 (303), 693–696.

(663a) In Morocco, 41 instances of hydatid cyst in the lung were observed among 87,500 persons examined over a period of eight years. R.T.L.

245—Medicina Colonial. Madrid.

b. DÍAZ MARÍN, J. & IRIGOYEN RAMÍREZ, A., 1951.—"Un nuevo caso de hallazgo coprológico de huevos de Fasciola." 17 (2), 164–166.

(245b) The finding of many eggs of *Fasciola* and a few of *Trichuris* in the faeces of a patient at Tetuán, Morocco is reported. The incidence of *Fasciola* infection in the vicinity is, in pigs 2%, in sheep 40%, in cattle 21% and in goats 5%. P.M.B.

701—Bulletin de l'Institut d'Hygiène du Maroc.

a. GAUD, J., 1951.—"Revue critique des travaux consacrés à la bilharziose vésicale au Maroc." 11 (1/2), 69–95.
b. GAUD, J. & CHEDECAL, M., 1951.—"Parasitisme intestinal chez les écoliers de Berguent." 11 (3/4), 301–310.

(701a) Gaud summarizes the limited amount of work which has been done on vesical schistosomiasis in Morocco and concludes that this is not nearly such a serious health problem there as in Egypt and tropical Africa. Little detailed information is available on the incidence of molluscan infection except at Marrakesh; it appears that the occurrence of *Bulinus contortus* in sufficient numbers to propagate the infection is limited to small, isolated areas. *Planorbis metidjensis* is regarded as a possible vector. At present four groups of foci are known on the Saharan side of the Atlas, viz., the western Bani, the Sous, Ouarzazate and Tafilalet, and on the Atlantic side Marrakesh and villages in the Gharb plain. P.M.B.

(701b) In 457 schoolchildren at Berguent, there were 22 instances of infection with *Hymenolepis nana*, two with *Trichuris trichiura*, seven with *Enterobius vermicularis* and 19 with *Ascaris lumbricoides*. [Table I gives the Ascaris incidence as 3.] R.T.L.

c. GAUD, J. & CHABAUD, A. G., 1951.—"Présence du nématode *Gongylonema pulchrum* chez l'homme, au Maroc." 44 (1/2), 62–65.

(12c) Gaud & Chabaud identify as *Gongylonema pulchrum* two female nematodes obtained from the buccal mucosa of a patient in Morocco. One worm was mature. *Ectobia germanica* is considered to be a likely intermediate host. S.W.

176—Archives de l'Institut Pasteur du Maroc.

a. JOYEUX, C., BAER, J. G. & GAUD, J., 1951.—"Recherches helminthologiques marocaines. Cestodes (deuxième note)." 4 (3), 93–102.
b. DOLLFUS, R. P., 1951.—"Miscellanea helminthologica maroccana. I. Quelques trématodes, cestodes et acanthocéphales." 4 (3), 104–229.
c. DOLLFUS, R. P. & CHABAUD, A. G., 1951.—"Miscellanea helminthologica maroccana. II. Cystique polycéphale chez un *Meriones shawi* (G. L. Duvernoy in C. A. Rozet 1833)." 4 (3), 230–235.
d. CHABAUD, A. G., 1951.—"Miscellanea helminthologica maroccana. III. Observation sur *Aprocta noctuae* Spaul 1927 (Nematoda—Aproctidae)." 4 (3), 236–243.
e. JOYEUX, C. & BAER, J. G., 1951.—"Recherches helminthologiques marocaines." [4e partie.] 4 (4), 304–313.

(176a) A more complete description is now given of *Catenotaenia oranensis* from the rodent *Meriones shawi*. Of the 11 species found in birds *Hymenolepis garruli* n.sp. from *Coracias garrulus* is probably identical with Meggitt's *Hymenolepis* sp. from the same host. It differs from *H. parvirostellata* as it has 12 hooks of 27μ to 31μ in length, whereas the latter has only 8 hooks, 13μ in length and belongs to the subgenus *Drepanidotaenia*. *Taenia coraciae* Rud. also from the same host is considered to be *nomen nudum*. *Paruterina purpurata* in *Lanius senator* and *Hymenolepis serpentulus* in *Sylvia atricapilla* and *Hirundo rustica* are new records for these hosts. R.T.L.

(176b) Dollfus records 36 helminth species collected mostly during his zoological missions in Morocco. Of the 21 trematodes mentioned, seven are new species, viz., *Ochetosoma* (*Pseudochetosoma*) *salmonicola* n.subg., n.sp. from *Salmo macrostigma* [but a note is inserted stating that the generic diagnosis is incorrect and that a new description will appear later] ; *Sonsinotrema calloti* n.sp. from *Rana ridibunda* ; *Pseudosonsinotrema chamaeleonis* n.g., n.sp. from *Chamaeleon chamaeleon* ; *Brachylecithum aetechini* n.sp. from *Erinaceus* (*Aetechinus*) *algirus* ; *Mesocoelium maroccanum* n.sp. from *Chalcides ocellatus* ; *Aporchis liouvillei* n.sp. from *Larus argentatus* ; *Echinoparyphium baculoides* n.sp. from a sea bird, possibly *Chlidonias leucopterus*. There is a key to the genera of Pleurogeninae parasitic in batrachians and chameleons of Europe and North Africa. In this subfamily two new genera are incorporated, *Pseudosonsinotrema* n.g. which differs from *Sonsinotrema* in having a well developed metraterm and *Candidotrema* n.g. for *Pleurogenes loossi* from *Rana esculenta*. Eleven cestodes were found including *Hymenolepis* (*Weinlandia*) *hoploporus* n.sp. in *Podiceps cristatus*. Among four acanthocephalans were *Centrorhynchus undulatus* n.sp. in *Circaetus gallicus* and *Acanthosentis maroccanus* n.sp. in *Barbus setivimensis*. A table sets out the lengths, the number of hooks, and the positions of the proximal end of the cirrus pouch in relation to the breadth of the proglottid for the species of *Hymenolepis* which occur in grebes and divers. The known Acanthocephala of the Erinaceidae are enumerated. R.T.L.

(176c) A polycephalous cyst showing endogenous proliferation with 27 diverticula was found in the thoracic cavity of *Meriones shawi* in Morocco. Each scolex carried two crowns of 32 hooks each, the large hooks were 340–344μ long, the small hooks 212–218μ. Attention is drawn to confusion due to misquotation of the original description of cysts cited by a number of authors, and it is considered probable that the cyst belongs to the same species as that described from *Lynx canadensis* and named *Taenia rileyi*. R.T.L.

(176d) *Aprocta noctuae* collected from *Athene noctua* in Morocco is figured and redescribed in detail. The male characters resemble those of *Aprocta proctata* but the female is amphidelphic. This latter feature is not regarded as of sufficient importance to exclude *A. noctuae* from the genus *Aprocta*. R.T.L.

(176e) The land snail *Euparypha pisana* is the principal vector of the lungworm *Cystocaulus ocreatus* which is very common in sheep and goats in the south-eastern region and uplands of Morocco ; 33·33% of the snails in the vicinity of Casablanca are infected. The patchy geographical distribution of the disease is associated by the authors with poor pasturage as they could only induce infection experimentally in under-nourished animals. R.T.L.

478—Maroc Médical.

a. PAGÈS, R. & GAUD, J., 1951.—" A propos de la filariose au Maroc. Un cas de parasitisme humain par gongylonème." 30 (313), 584–585.
b. PARRES, A., 1951.—" Kyste hydatique du rein." 30 (315), 694–696.
c. BOLOT, F., 1951.—" Kyste dermoïde calcifié du pôle supérieur du rein." 30 (315), 700.
d. CROZES, M., 1951.—" La bilharziose vésicale au Maroc." 30 (315), 726–727.
e. LAPIDUS, M., 1951.—" Uréthrite chronique et bilharziose vésicale." 30 (315), 729.
f. COIQUAUD, A. & DUVEZIN, B., 1951.—" Sur un cas de kyste hydatique du pôle inférieur de la rate, diagnostiqué par rétro-pneumo-péritoine." 30 (316), 790.
g. TAPIE, J., LAPORTE, J., ENJALBERT, ECHAPASSE & MOREAU, 1951.—" Caverne tuberculeuse du lobe moyen prise pour un kyste hydatique et traitée avec succès par lobectomie." 30 (318), 1024–1028.
h. CHEVRET, R. & CHALLIOL, J., 1951.—" Traitement chirurgical des kystes hydatiques du poumon." 30 (318), 1116–1119.

(478a) Two damaged female filarial worms, one mature and one immature, each about 50 mm. in length, which were extracted at an interval of 15 months from the buccal mucosa of a 24-year-old woman at Rabat, Morocco, were diagnosed as *Gongylonema pulchrum*. P.M.B.

(478d) Crozes discusses other authors' work on the distribution of a relatively mild form of schistosomiasis haematobia in Morocco where the vectors are *Bulinus contortus* and, much more rarely, *Planorbis metidjensis*. The native Moroccans are much more resistant to the disease than are the Europeans. At Marrakesh he found that the number of cases varied very much from one year to another in accordance with variations in the snail population. P.M.B.

638—Afrique Française Chirurgicale.

cn. SENEVET, G., 1951.—" Epidémiologie du kyste hydatique en Afrique du Nord." Year 1951, No. 4, pp. 421–426.

937—Terre Marocaine.

*a. ZOTTNER, 1951.—" Prophylaxie vétérinaire de l'échinococcose au Maroc." 25, 330–332.
*b. JONCQUIERT, 1951.—" Les sangsues." 25, 441–444.

645—Bulletin de l'Institut d'Hygiène du Maroc.

a. GAUD, J., 1952.—" Gongylonémose humaine au Maroc." 12 (1/2), 83–86.

(645a) Gaud records a second case of human infection with *Gongylonema pulchrum* contracted in Morocco. The patient had lived for several years at Khouribga. The specimen, which had been removed by the patient from the buccal mucosa, was a complete male 32 mm. long. He recalls that in the first case which came from Rabbat there were two female worms. R.T.L.

480—Archives de l'Institut Pasteur du Maroc.

a. DOLLFUS, R. P., 1953.—" Miscellanea helminthologica maroccana V. Présence au Maroc d'*Aspidogaster conchicola* K. E. von Baer 1826 [Trematoda Aspidogastrea]." 4 (8), 492–495.

(480a) The presence of *Aspidogaster conchicola* in the pericardium of *Unio rhomboideus* is recorded for the first time in Morocco. M.MCK.

591—Maroc Médical.

a. GARIPUY, A., DASTE, B., COUZI, G. & MALLARET, P., 1953.—" Distomatose duodénale à *Fasciola hepatica*." 32 (337), 614–616. [Discussion p. 616.]

(591a) A case of human infection with *Fasciola hepatica* is reported from French Morocco. X-ray revealed that the flukes were located in the duodenum and *F. hepatica* eggs were recovered by duodenal tubation. The introduction of a 33% solution of magnesium sulphate brought about the expulsion of the worms. R.T.L.

521—Comptes Rendus des Séances Mensuelles. Société des Sciences Naturelles du Maroc.

a. GAUD, J., 1953.—" A propos de la filariose humaine du Maroc." 19 (5), 69.

(521a) Gaud records two further cases of human infection with *Gongylonema pulchrum* in Morocco. S.W.

255—Revue de Médecine Vétérinaire.

a. SANTUCCI, J., SENDRAL, R. & HAAG, J., 1953.—" Présence de la tétramérose, chez le pigeon, au Maroc." 104, 335–337.

(255a) At Rabat, French Morocco, a frequent cause of death in domestic pigeons was found to be a species of *Tetrameres*, probably *T. fissispina* or *T. confusa*. Treatment with phenothiazine was ineffective. The intermediate host could not be traced. P.M.B.

328—Bulletin de la Société de Pathologie Exotique.

h. SENDRAL, R. & CHARBIT, C., 1953.—"Note sur la spirocercose canine à Rabat." 46 (5), 711–713.

(328h) Of 55 dogs examined post mortem by Sendral & Charbit in Rabat, 23 had nodules of *Spirocerca sanguinolenta*. No dog less than six months old was infected, making the infection rate in adults 62%. In every case nodules were found on the oesophagus; additional nodules were found once on the mediastinum, four times on the aorta and once on the stomach. S.W.

852—Maroc Médical.

a. ARMAND, P., 1955.—"Forme pseudo-oslérienne d'une ankylostomose sévère. Refléxions sur l'insuffisance cardiaque vermineuse." 34 (359), 363–365.
b. TISSIER, M., TAUZIN, J., CHICOU, J. & BAUDOUARD, Y., 1955.—"Pneumothorax spontané (2 cas) au cours d'une distomatose des voies biliaires à *Fasciola hepatica*." 34 (359), 415–416.
c. CHENEBAULT, J., 1955.—"Notes sur le kyste hydatique du poumon chez l'homme, au Maroc." 34 (359), 417–422.
d. CHEVRET, R., 1955.—"Traitement chirúrgical des kystes hydatiques du poumon." 34 (359), 423–426.
e. LAFFERRE, M., 1955.—"L'ankylostomose et le parasitisme amibien." 34 (359), 470–473.
f. GAUD, J., 1955.—"Introduction à la parasitologie marocaine." 34 (367), 1511–1524.

(852a) Armand describes a case of extremely severe ancylostomiasis, in a repatriated prisoner-of-war from Vietminh, which was originally diagnosed as Osler's disease. Repeated treatment failed to eliminate the parasites. It appears that, in this case anyway, the hookworms were responsible for the cardiac insufficiency either by a direct effect of the acute anaemia or by their toxins. The author notes that almost all the prisoners-of-war from Indo-China suffer from ancylostomiasis and, from his observations on 24 cases, considers that autoinfection may occur. S.W.

(852f) This paper is concerned mainly with malaria and intestinal protozoa but mention is made of hookworm, *Strongyloides*, *Ascaris*, *Enterobius*, *Trichuris*, *Hymenolepis nana* and *Taenia saginata*. S.W.

768—Bulletin Mensuel. Société de Médecine Militaire Française.

*a. CANTAGRILL, M., TAUZIN, J., TISSIER, M. & LÉVY, P., 1955.—"Un foyer de distomatose humaine à Agadir." 49 (3), 75–79.

206—Bulletin de l'Office International des Épizooties.

p. VAYSSE, J., 1955.—"Situation sanitaire au Maroc à l'égard des maladies parasitaires." 43 (1/2), 259–268.

(206p) Vaysse tabulates the common parasites of farm animals in Morocco. *Echinococcus* cysts and *Cysticercus bovis* occur frequently in bovines. Although strongyloids produce the most serious infections in sheep and goats, *Moniezia expansa* may cause a high mortality among lambs. Liver-fluke infection, common in such districts as Rabat and Fez, is treated with carbon tetrachloride which is supplied free; hexachlorethane treatment has barely begun. M.MCK.

757—Maroc Médical.

a. LISCIA, G., 1956.—"Traitement médical du kyste hydatique par injections de thymol iodé. (Méthode de Cuervo)." 35 (373), 691–692.
b. BERTRAND, J. L. & FAURE, H., 1956.—"Une épidémie localisée de distomatose hépatique et deux cas de distomatose hépatique à manifestations sous-cutanées." 35 (376), 902–913.
c. LALU, P., 1956.—"Le kyste hydatique, maladie marocaine." 35 (377), 945–946.
d. DEKESTER, M., 1956.—"Un cas de distomatose sous-cutanée au Maroc." 35 (377), 975.
e. ROUZAUT, J., 1956.—"De l'intérêt d'une exérèse chirurgicale importante dans un cas d'échinococcose secondaire péritonéale." 35 (377), 990–994.
f. ACQUAVIVA, R., THEVENOT, C. & VERTUT, J., 1956.—"Echinococcose thyroïdienne." 35 (377), 995–996.
g. LAPIERRE, J., 1956.—"Les traitements actuels de l'oxyurose." 35 (378), 1052–1057.
h. GAUD, J. & CHEDECAL, M., 1956.—"Les parasites intestinaux au Maroc." 35 (378), 1058–1064.
i. CHENEBAULT, J., 1956.—"Quelques problèmes actuels de l'hydatidose." 35 (378), 1067–1079.
j. THIODET, J., 1956.—"Les cirrhoses hydatiques." 35 (378), 1080–1086.
k. GAUD, J., 1956.—"Le problème sanitaire posé par la bilharziose au Maroc." 35 (378), 1086–1091.
l. CHENEBAULT, J., 1956.—"Les parasitoses au Maroc dans la pratique pneumologique." 35 (379), 1169–1172.
m. ROLLIER, R., 1956.—"Parasitoses et dermatologie au Maroc." 35 (379), 1173–1187.
n. BRU, P., 1956.—"Les incidences hématologiques des parasitoses." 35 (379), 1188–1211.
o. GARIPUY, M., 1956.—"Aperçu clinique sur les parasitoses digestives (amibiase exceptée)." 35 (379), 1212–1213.
p. ROLLAND, J. L., 1956.—"Les troubles mentaux d'origine parasitaire au Maroc." 35 (379), 1214–1219.
q. GUILHON, J., 1956.—"Propriétés anthelminthiques de la pipérazine." 35 (379), 1223–1228.
r. BELOT, P., 1956.—"Quelques parasitoses animales au Maroc vues par un praticien." 35 (379), 1241–1244.
s. VAYSSE, J. & ZOTTNER, G., 1956.—"Situation sanitaire au Maroc à l'égard des principales maladies parasitaires du bétail." 35 (379), 1245–1253.

t. COUDERT, J., 1956.—" Intérêt des antigènes lyophilisés en parasitologie." 35 (379), 1257–1259.

u. GAUD, J., LAURENT, J. & FAURE, P., 1956.—" Arthropodes vecteurs possibles de maladies au Maroc." 35 (379), 1259–1266.

(757b) Bertrand & Faure describe a local epidemic of fascioliasis in a group of nine workmen in the north of Morocco. Treatment with emetine, combined in some cases with other anthelmintics and antibiotics, appeared to effect a cure in all nine cases. In two other cases, which they report from France, fluke infection was believed to have caused subcutaneous granulomatous nodules in one and erythematous eruptions in the other. Treatment with emetine-notézine caused the disappearance of the lesions. S.W.

(757d) Dekester describes a case of subcutaneous fascioliasis in man in Morocco. Surgical removal of the abdominal lesion and sectioning of the material revealed the presence of an immature *Fasciola hepatica.* S.W.

(757g) Lapierre reviews the drugs which have been used in the treatment of enterobiasis; he concludes that piperazine derivatives, terramycin and tetracyclin are the most efficacious but recommends that the antibiotics should only be used in cases which are resistant to piperazine. S.W.

(757h) Gaud & Chedecal list, annotate and tabulate the incidence of intestinal parasites in man in Morocco from their own observations and published reports. The helminths mentioned are *Ascaris lumbricoides, Trichuris trichiura, Ancylostoma duodenale, Enterobius vermicularis, Strongyloides stercoralis, Taenia saginata* and *Hymenolepis nana.* S.W.

(757k) Schistosomiasis does not appear to present a serious problem in Morocco. Although it is spread throughout the palm groves on the edge of the Sahara no new focus has been reported since 1941 and the incidence appears to fluctuate widely from year to year. In children the infection rate varies between 10% and 20% and in adults between 7% and 15%. Mass treatment of the population and wide-spread molluscicidal treatment of the irrigation canals are impracticable but Gaud suggests that the construction of bathing pools in the palm groves, which could be treated with copper sulphate, would not only greatly decrease the rate of infection but improve the amenities. S.W.

(757l) Pulmonary hydatid is common in man in Morocco. Chenebault briefly reviews its diagnosis and treatment. Trematodes in the lung are rare but two cases of spontaneous pneumothorax, caused by *Fasciola hepatica,* have been reported; the two cases were in members of the same family. S.W.

(757m) In this account of parasites as causative agents of skin diseases in Morocco, Rollier mentions cutaneous ancylostomiasis, which is not uncommon amongst workers in the phosphate mines, two cases of prurigo nodularis caused by *Taenia saginata,* and *Enterobius* as the cause of pruritus ani and associated conditions. S.W.

(757n) Bru discusses, under various headings, the helminths which parasitize man and their effects on the blood. Those which normally occur only in the intestine provoke little or no eosinophilia or anaemia—with the notable exception of *Diphyllobothrium.* Others, which have a tissue phase or which live in tissues or organs other than the intestine cause eosinophilia, anaemia and other humoral disturbances. The role of filariae in the aetiology of tropical eosinophilia is considered. S.W.

(757o) In this brief, and very general, account Garipuy mentions *Taenia saginata, Fasciola hepatica, Ascaris, Enterobius, Trichuris* and *Ancylostoma* together with appropriate measures for their treatment and prophylaxis. S.W.

(757p) In this short account of mental disorders caused by parasites, Rolland refers to cerebral cysticerciasis and hydatidosis and cerebral invasion by *Trichinella* larvae, and to certain mental disturbances (irritability, confusion, preoccupation, depression etc.) which have been attributed to heavy infections with *Ascaris, Ancylostoma, Taenia* and *Enterobius.* S.W.

(757q) Guilhon gives a comprehensive review of piperazine as an anthelmintic from the discovery of the antifilarial and ascaricidal properties of one of its derivatives by Hewitt *et al.* in 1947 to recent work on the adipate, carbodithioate and dilaurate which have the advantage of being insoluble or only slightly soluble. S.W.

(757r) Belot, in this general paper, refers to gastro-intestinal nematodes, lungworms, fascioliasis, hydatid, *Spirocerca, Echinococcus,* ascarids and *Dipylidium* as affecting domestic animals in Morocco. S.W.

(757s) Vaysse & Zottner discuss in general terms and make recommendations for the treatment and prophylaxis of the common helminths of domestic animals in Morocco—lungworms, gastro-intestinal nematodes, *Fasciola, Moniezia,* cysticerci and hydatid in ruminants, *Ascaris, Gigantorhynchus* and hydatid in pigs, strongyles and *Parascaris* in horses and *Heterakis* in fowls. The frequency of the various parasites in their hosts and their pathogenic action are tabulated. S.W.

(757t) Coudert describes the preparation of lyophilized antigens and confirms, from six years experimental work, the value of these in the diagnosis of distomiasis (*Fasciola hepatica*), ascariasis and hydatid disease. S.W.

(757u) Gaud *et al.* discuss as potential disease vectors the arthropods found in Morocco. The species are tabulated, together with the principal hosts, frequency, association with man and domesticity. S.W.

344—Archives de l'Institut Pasteur du Maroc.

a. DOLLFUS, R. P. & CHABAUD, A. G., 1957.—"Miscellanea helminthologica maroccana XXIII. Nématodes d'otidiformes." 5 (7), 408–446.
b. CHABAUD, A. G. & GOLVAN, Y. J., 1957.—"Miscellanea helminthologica maroccana XXIV. Nématodes parasites de lézards de la forêt de Nefifik." 5 (7), 447–469.

(344a) The following nematodes are recorded from Morocco: *Hartertia rotundata* in *Tetrax tetrax* (a new host) and *Choriotis arabs*, and *Subulura* sp. No. 1 in *Choriotis arabs*. *Subulura* sp. No. 2 is reported from *Neotis cafra* in the French Sudan. Whether or no *Subulura suctoria* is a parasite of Otidiformes and if the descriptions of African specimens are attributed rightly or wrongly to *Subulura suctoria* by various authors, are discussed. Barreto's omission (1918, 1919) of Otidiformes from among the hosts of this species is considered to have been justified. R.T.L.

(344b) Chabaud & Golvan record the presence in lizards in Morocco of: *Pharyngodon auziensis* in *Tarentola m. mauritanica*; *Thubunaea pudica* in *Agama bibroni*, *Lacerta lepida*, *Psammodromus algirus* and *Eumeces algeriensis*; *Pharyngodon* sp. in *Psammodromus algirus*; *Pharyngodon mamillatus* in *E. algeriensis*; *Spirura gastrophila seurati* in *Agama bibroni* and *E. algeriensis*; *Thelandros echinatus* in *Tarentola m. mauritanica*; *Thelandros alatus* and *Tachygonetria vivipara* in *Uromastix acanthinurus*; *Thelandros bulbosus* in *Chalcides mionecton* and *C. ocellatus polylepis*; *Thelandros* sp. in *Ophisaurus koellikeri* and *Strongyluris icosiensis* in *Gongylus* sp. *Pharyngodon mamillatus* is now figured and described in detail. They list six species of *Pharyngodon* of which only the females are known. A dichotomous key is given for the 30 species of which both males and females are known. The authors observed in *Thelandros bulbosus* three different types of lateral alae which do not correspond to those described by Seurat but as these probably are the result of fixation the variety *annualatus* (*Oxyuris annulata* Linstow) is considered a synonym of *T. bulbosus* and *T. micipsae* a synonym of *T. echinatus*. *Pharyngodon tectipenis* Calvente, 1948 *nec* Gedoelst, 1919 is renamed *P. paratectipenis* nom.nov. R.T.L.

103—Bulletin of the World Health Organization.

a. ABDEL MALEK, E., 1958.—"Distribution of the intermediate hosts of bilharziasis in relation to hydrography: with special reference to the Nile Basin and the Sudan." 18 (5/6), 691–734. [French summary p. 732.]
c. GAUD, J., 1958.—"Rythmes biologiques des mollusques vecteurs des bilharzioses. Facteurs saisonniers et climatiques influençant le cycle de reproduction de *Bulinus truncatus* et de *Planorbarius metidjensis* en Afrique du Nord." 18 (5/6), 751–769. [English summary pp. 768–769.]

(103a) Abdel Malek gives an extensive description of the general geographical features of the Sudan and Nile valley and of certain vectors of *Schistosoma haematobium* and *S. mansoni* collected over a period of three years. The vectors are species of *Biomphalaria* and *Bulinus*. The author considers that a knowledge of the pre-history of the region is important for an appreciation of the snail distribution, and lays emphasis on the influence of climate and rivers on fresh-water snail population. There appears to be a gradual extension of *Biomphalaria* along the Nile to the south. W.K.D.

(103c) Seasonal and climatic factors have an action on vector biology. In North Africa the vectors of *Schistosoma haematobium* are *Bulinus truncatus* and *Planorbarius metidjensis* though the latter is doubtful. The development of *Bulinus* is very different from that of *Planorbarius* seasonally. A two-year study of *Bulinus* showed egg-laying to be least in winter and a great seasonal variation in the time taken to reach sexual maturity. The life span can be up to 21 months. There is a close parallel between growth and fecundity, and water temperature.

The present molluscicides have the disadvantages that they do not destroy the snail population completely, are less effective against the eggs than against the adults, and because of their high cost create a tendency to reduce the number of treatments per year below the necessary minimum. W.K.D.

2432—BECMEUR, A. & LAFFERRE, M., 1958. "L'infestation ankylostomienne dans les mines de phosphate marocain." **Maroc Médical, 37** (395), 487–489.

87—Archives de l'Institut Pasteur du Maroc.

a. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXV. Sur quelques fragments de deux espèces de Dilepididae (Cestodes) à appareil occlusif chitinoïde, parasites de l'intestin d'*Apus pallidus brehmorum* Hartert." 5 (8), 504–539.
b. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXVI. Nouvelles récoltes de *Tetrathyridium* au Maroc (Cestodes, Mesocestoididae)." 5 (8), 540–546.
c. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXVII. Changement d'appellation pour *Prosthodendrium pyramidum* forma *maroccana* R.Ph. Dollfus 1954." 5 (8), 547–550.
d. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXVIII. Sur deux espèces de Gorgoderidae (Trematoda Digenea) de la vessie de *Rana ridibunda* Pallas, au Maroc." 5 (8), 551–562.
e. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXIX. Deux espèces de distomes (gen. *Pleurogenoïdes* et *Opisthioglyphe*) de l'intestin de *Bufo* du Moyen-Atlas." 5 (8), 563–576.
f. DOLLFUS, R. P., 1958.—"Miscellanea helminthologica maroccana XXX. Présence au Maroc de *Platynosomum semifuscum* A. Looss 1907 (Trematoda, Digenea)." 5 (8), 577–581.

(87a) Dollfus describes *Anomotaenia brachycolpos* n.sp. from fragments, with scolex, of two immature individuals collected from *Apus pallidus brehmorum*. The shortness of the vagina between the chitinous occlusive apparatus and the genital sinus is characteristic. *Anomotaenia depressoides* n.sp., from the same host, described from several fragments of strobilus without scolex, resembles *A. depressa* but has irregularly lobed ovaries, irregular testes which do not extend in front of the ovaries, and strong spines on the posterior borders of the proglottides. The species of *Anomotaenia*, *Pseudangularia*, *Neoangularia* and *Neoliga* are reviewed to show which of them has a chitinous occlusive apparatus between the receptaculum seminis and the vagina. W.A.F.W.

(87b) Dollfus records *Tetrathyridium lacertae-viridis* from *Zamenis hippocrepis* and *Coelopeltis monspessulana*, and gives a description of similar worms which were taken from the body-cavity of *Chalcides ocellatus* var. *polylepis*. He also describes 24 specimens of *Tetrathyridium*, from the intestine of *Aethechinus algirus*, which may be the same as those found by Joyeux (1923) in the same host. W.A.F.W.

(87c) Dollfus has examined about 60 more specimens of a *Prosthodendrium*, which he previously described as *P. pyramidum* forma *maroccana*. He now agrees with Dubois 1955 [for abstract see Helm. Abs., 24, No. 923a] that the material is not *P. pyramidum*. He renames it *P. maroccanum* nom. nov. since it differs from *P. parvouterus*, to which Dubois assigned it, in the following characters: oesophagus longer than pharynx (in *P. parvouterus* the oesophagus is absent); gut caeca never extend laterally completely in front of the testes; ovary never at the same level as the testes, never in the space separating one testis from the prostrate, and never reaching as far as the caeca. W.A.F.W.

(87d) Dollfus describes two species of *Gorgoderina* from the bladder of *Rana ridibunda*. Two specimens are assigned to *G. vitelliloba* (Olsson, 1876) and a second group of specimens to *G. microovata* Fuhrmann, 1925. The latter differ in the shape of the ovary from those which he previously recorded [for abstract see Helm. Abs., 20, No. 176c]. The genera *Gorgoderina* and *Phyllodistomum* and their subgenera are discussed and it is suggested that they should be differentiated on the grounds of the class of the host (Batrachia and Pisces) and on the shape of the body. W.A.F.W.

(87e) Thirty-three specimens of *Pleurogenoïdes ifranensis* n.sp. were found in the intestine of a *Bufo bufo spinosus* which was collected at Ifrane. *P. ifranensis* resembles *P. stromi* Travassos, 1930, but differs from it in the position of the genital pore. *P. ifranensis* shows the following characters which are not found together in any other species of the genus: ovary in the midline, between the two gut caeca; testes more or less asymmetrically placed in front of the middle of the ventral sucker; genital pore at one-third of the length of the body from the anterior end; oesophagus absent; cirrus pouch entirely or almost entirely behind the intestine, not traversed or not completely traversed by the left caecum. On examining his specimens of *Opisthioglyphe*, Dollfus finds that it is not possible to group the species of the subgenera according to the position of the cirrus pouch in relation to the ventral sucker, or to the form and position of the testes [compare Dollfus, 1957, for abstract see Helm. Abs., 26, No. 6c]. He also concludes that *O. endoloba* (F. Dujardin, 1845) is not a synonym of *O. ranae* (Froelich, 1791), but that Travassos' specimens from *Rana ridibunda* and his own new material are *O. endoloba*. W.A.F.W.

(87f) Dollfus records *Platynosomum semifuscum* in a *Circaetus gallicus* from Morocco and notes minor differences between his eight specimens and those described by Looss. This is the first record of the species from North Africa. W.A.F.W.

2410—DOLLFUS, R. P., 1958. "Miscellanea helminthologica maroccana XXXI. Sur deux espèces de Dilepididae de l'intestin d'*Apus pallidus brehmorum* Hartert 1901. (Supplément à Miscellanea helminthologica maroccana XXV)." **Archives de l'Institut Pasteur du Maroc, 5** (9), 587–609.

Paruterina isonciphora n.sp. from the intestine of *Apus pallidus brehmorum possesses* 44 to 46 rostellar hooks, arranged in 2 rows, and 5 testes. The species, which is described and illustrated, is compared with *P. vesiculigera* and *P. iduncula*. Dollfus gives further illustrated accounts of *Anomotaenia brachycolpos* and *A. depressoides* [for abstract of previous descriptions of which see Helm. Abs., 27, No. 87a]. H.H.W.

2439—GAUD, J., 1958. "A propos de l'ankylostomose. Peut-on parler de maladies parasitaires professionnelles au Maroc?" **Maroc Médical, 37** (395), 486–487.

*1714—JACQUEMIN, P., PIETRI, J., RAOUX, J. P. & VIAN, 1958. "Le laboratoire dans les parasitoses intestinales de l'enfant en Afrique du Nord. Procédés traditionnels et techniques nouvelles." **Algérie Médicale, 62** (8), 805–808.

*1727—SENEVET, G., 1958. "Les parasitoses intestinales chez l'enfant en Afrique du Nord." **Algérie Médicale, 62** (8), 797–803.

1095—LAFFERRE, M. & BECMEUR, 1959. "L'ankylostomose dans les mines de phosphate marocaines." **Maroc Médical**, 38 (404), 226.
Lafferre & Becmeur briefly discuss ancylostomiasis in workers in the phosphate mines of Morocco. Control measures are outlined. N. Jones

1044—LAHBABI, H., 1959. "La maladie hydatique au Maroc." **Maroc Médical**, 38 (404), 126–129. [English summary p. 129.]
Lahbabi reports that 1·6% of 10,000 operations carried out at the Maurice-Gaud Hospital in Casablanca in 1956–57, were on cases of hydatid disease. In 37·5% of the operated cases, hydatid cysts were localized in the liver. Partial cystectomy, i.e. removal of the extra-hepatic part of the cyst, was preferred to total cystectomy or marsupialization. In 31·25% of the cases, mainly males and young people, the cysts were localized in the lungs and in these cases Ugon's method was preferred. Cysts also occurred in the spleen, kidney, peritoneum, mesentery, genitalia, muscular masses and nervous system. N. Jones

38—LE CORROLLER, Y. & PIERRE, J. L., 1959. "Sur un cas de linguatulose humaine au Maroc." **Bulletin de la Société de Pathologie Exotique**, 52 (6), 730–733.
Le Corroller & Pierre report the case of an adult male aged 40 years who presented himself to the Provincial Medical Service in Casablanca complaining of pain in the region of the maxillary sinus and purulent nasal discharge containing white vermiform larvae which were identified as nymphs of *Linguatula serrata*. Biopsy revealed sclero-inflammatory lesions of the sinus mucosa but no parasites. Adult worms were not present. Cure was effected by two curettages at one month's interval. The status of the human host is discussed and it is concluded that the patient in this instance was a secondary host in whom the localization of the larvae was atypical. The source of the infection was not elucidated. J. M. Watson

1456—DOLLFUS, R. P., 1960. "Miscellanea helminthologica maroccana. XXXII. Nematodes du genre *Richtularia* chez un *Apodemus* du Moyen-Atlas." **Archives de l'Institut Pasteur du Maroc, 6** (1), 5–25.
The author describes 4 female *Rictularia proni* from the intestine of *Apodemus sylvaticus* of Azrou (Moyen-Atlas). This is the first record of the genus in Morocco. An extensive review of the genus *Rictularia* includes 49 references. R.C.A.

*2371—LAHBABI, H., 1961. "Etat actuel de l'hydatidose au Maroc." **Maroc Médical, 40** (428), 24–30.

*2361—MALENFANT, M., 1961. "Contribution à l'étude de la distomatose à *Fasciola hepatica* au Maroc. Aspects cliniques et épidémiologiques." **Maroc Médical, 40** (439), 1244–1299.

*1922—CHENEBAULT, J., BENIS, B. & RAZZOUK, H., 1963. "Formes rares de l'échinococcose. Les kystes hydatiques du diaphragme et des muscles intercostaux." *Maroc. méd.*, **42** (462), 913–924.

*1628—DELONS, S., FRANQUET, G. & GILLET, J., 1963. "Contribution à l'étude des lésions urétérales radiologiques de la bilharziose urinaire au Maroc." *Méd. Afr. noire*, **10** (6), 291–292.

2402—GUIRAN, D. DE, 1963. "Un nématode nouveau associé aux cultures d'agrumes au Maroc." **Comptes Rendus des Séances de l'Académie d'Agriculture de France, 49** (5), 392–394.
Hoplolaimus leiomerus n.sp. is described, but not illustrated, from about the roots of citrus in Morocco. The lip region is offset with 4 to 5 annules and only the basal annule is longitudinally striated with about 30 striations. The female tail is short and hemispherical; large phasmids, one in front of the other, are erratically placed in the vulval region. The male tail is short, conical and enveloped by the bursa; the spicules are 28 to 30μ long. *H. leiomerus* is differentiated from *H. galeatus* and *H. tylenchiformis* in having 4 lateral lines which are not interrupted by the transverse annulations and a shorter stylet which is 28 to 30μ long. D.J.H.

2186—DOLLFUS, R. P., 1964. "Miscellanea helminthologica maroccana XXXIII. Sur quatre espèces de Polymorphidae (Acanthocephala) récoltées au Maroc." **Archives de l'Institut Pasteur du Maroc,** Year 1962, 6 (4), 325–347.
Sexually mature *Corynosoma strumosum* were found in the intestines of 3 *Phalacrocorax carbo maroccanus*; the females were full of eggs. The significance of this observation is discussed. The morphological characters of 8 species, given by different authorities, are tabulated. Dollfus's specimens are illustrated by 9 figures. One juvenile encapsulated specimen of *Prosthorhynchus* sp. found in *Crocidura russula* is described and figured. Juveniles of 2 species, designated as *Centrorhynchus* (*Sphaerirostris*) sp. A and B, were recovered from *Malpolon monspessulanus*; these are described and their proboscides and hooks figured. The specimen "A" corresponds with *C.* (*S.*) *picae* but "B" does not correspond with any species so far described. All were collected in Morocco. S.W.

2179—DOLLFUS, R. P., 1964. "Miscellanea helminthologica maroccana XXXIV. Cyclophyllides de quelques oiseaux et mammifères." **Archives de l'Institut Pasteur du Maroc,** Year 1962, 6 (4), 348–391.
Dollfus describes, illustrates, compares with other specimens and discusses the morphology and taxonomy of the following cyclophyllidean cestodes from Morocco: *Aporina delafondi* from *Columba palumbus excelsa*, *C. oenas* and *Streptopelia turtur arenicola*; *Hymenolepis serrata* from *S. t. arenicola* and *S. turtur*; *Cotugnia* cf. *polyacantha* from *S. turtur*, which differs from *C. polyacantha* mainly by the size of the cirrus pouch, the more anterior position of the genital pore and the displacement in an antiporal direction of the vitelline gland; *Haploparaxis filum* from *Scolopax rusticola*; *Hymenolepis stylosa* from *Pica pica mauritanica*; fragments of *Raillietina* (*Paroniella*) sp. and scolex and fragments of another cestode, too badly preserved to be identifiable, from *Corvus corax tingitanus*; *Pseudhymenolepis redonica* from *Crocidura russula*; *Moniezia benedeni* from a dromedary; *Cysticercus tenuicollis* from a domestic sheep. Hydatid cysts from a human lung are also noted. S.W.

1774—DOLLFUS, R. P., 1964. "Miscellanea helminthologica maroccana XXXV. Trois espèces de filaires d'oiseaux à ajouter à la faune du Maroc." **Archives de l'Institut Pasteur du Maroc,** Year 1962, 6 (4), 392–407.
Squamofilaria coraciae from *Coracias garrulus*, *Aprocta turgida* from *Larus argentatus*, and *Diplotriaena* sp. from *Oenanthe oenanthe* are added to the Moroccan fauna. All three are described, figured and discussed. S.W.

1705—DOLLFUS, R. P., 1964. "A propos de la récolte, à Banyuls d'un cystique de cestode chez *Tursiops truncatus* (Montagu, 1821). Les cystiques de cestodes chez les cétacés et pinnipèdes." **Vie et Milieu. Paris,** Suppl. 17, pp. 177–204.
A cyst found in the peritoneum of *Tursiops truncatus* at Banyuls, France, contained *Monorygma delphini* which is described and figured and compared with *Phyllobothrium delphini*. Dollfus also refers to having examined specimens of *M. delphini* from *Delphinus delphis* at Concarneau and Casablanca, and from *Orca orca*, a new host record, at Saint-Jean-de-Luz, France. The literature on larval cestodes in Cetacea is extensively reviewed and arranged in chronological order from 1684 to 1955. An appendix includes information on larval cestodes in Pinnipedia. 67 references are cited. H.H.W.

2864—DOLLFUS, R. P., 1964. "Metacercaria: *Proctoeces progeneticus* (Trematoda Digenea) chez une *Gibbula* (Gastropoda Prosobranchiata) de la côte atlantique du Maroc. Observations sur la famille Fellodistomatidae." **Annales de Parasitologie Humaine et Comparée,** 39 (6), 755–774.
Proctoeces progeneticus n.sp. from *Gibbula umbilicalis* in Morocco is described and figured. Dollfus emphasizes that species of the genus are difficult to identify and that authors do not agree on synonymy. He states that after comparison of his specimens from *Gibbula* with descriptions of other species they are thought to be new. A diagnosis for the species is given and the systematic position of *Proctoeces* is discussed in detail. The hosts and localities for and references to members of the Proctoecinae are tabulated in chronological order. H.H.W.

2667—DESCHIENS, R. & LE CORROLLER, Y., 1965. "La répartition des gîtes de *Bulinus contortus*, vecteurs de la bilharziose urinaire au Maroc." *Bull. Soc. Path. exot.*, 58 (3), 455–461. [English summary p. 461.]

3549—SCOTTO LA MASSÈSE, C., 1965. "Essais de destruction de *Tylenchulus semipenetrans* Cobb 1913 sur les scions de citrus issus de pépinières." *C. r. 1ères Journées Phytiât. Phytopharm. circum-méditerranéennes, Marseille,* pp. 48–51.
Heat treatment at 50°C. for 10 min. eradicated *Tylenchulus semipenetrans* but was lethal to citrus root-stocks. Hexane dithioldiacetate was also phytotoxic at 200 p.p.m. for 24 hours. Zinophos [thionazin] at 0·25% for 20 min. was ineffective against the nematode. Heat treatment at 47°C. for 10 min. was effective and non-phytotoxic but did not completely rid the root-stock of *T. semipenetrans.* J.E.P.

3363—SCOTTO LA MASSÈSE, C., 1965. "Sensibilité de quelques porte-greffes de citrus à l'égard de *Tylenchulus semipenetrans* Cobb, 1913." *C. r. 1ères Journées Phytiât. Phytopharm. circum-méditerranéennes, Marseille,* pp. 59–68.
The pathogenicity of *Tylenchulus semipenetrans* on 5 root-stocks of citrus was studied. The plants were raised in unheated glasshouses in 10-litre plastic buckets. The pathogenicity was estimated by measuring and weighing the plants. Resistance of the hosts was evaluated by the rate of multiplication of the nematode after 12 and 16 months. A ratio of the percentage reduction in plant weight to the number of nematodes was derived. Clone X underwent the greatest reduction of vigour (5% weight-loss per 1,000 nematodes) and favoured very rapid multiplication of *T. semipenetrans.* Bigaradier and the Citrange Troyer root-stocks were the most susceptible; the first of these was an excellent host but the 2nd only allowed slight multiplication. The 2 Rough lemons, R.L.A. and R.L.B., harboured significant populations and suffered moderate damage. S.W.A.

2560—DESCHIENS, R., FLYE SAINTE MARIE, P. & LE CORROLLER, Y., 1966. "Prospection complémentaire de la bilharziose urinaire dans la vallée du Draa." *Bull. Soc. Path. exot.*, 59 (3), 332–334. [English summary pp. 333–334.]

1072—DESCHIENS, R. ET AL, 1966. "Enquête épidémiologique et mesures prophylactiques pilotes relatives à la bilharziose urinaire dans la Province de Marrakech." *Bull. Soc. Path. exot.*, 59 (5), 826–835. [English summary p. 834.]

An epidemiological survey of *Schistosoma haematobium* in southern Morocco revealed an average rate of infection of 5·0%. Prophylactic measures for eradication included control of the molluscan vectors using copper chloride and copper oxide, sanitary education and treatment of patients. Trials were carried out over 3 years in Marrakech where the average infection rate amongst children was 25%. Molluscicides were used, as powders and suspensions, at 2 to 4 p.p.m. concentration in the months of May, July and September. K.H.

1677—DOLLFUS, R. P., 1966. "Metacercaire progénétique de *Proctoeces* chez un gastropode prosobranche de la Côte Atlantique du Maroc." [Abstract.] *Int. Congr. Parasit.* (1*st*), *Rome*, Sept. 21–26, 1964. Proceedings, Vol. I, pp. 536–537.

5048—DRAGOJLOVIC, D., 1966. "Kwashiorkor à cause de helminthiases chez les enfants au Maroc." *Int. Congr. Parasit.* (1*st*), *Rome*, Sept. 21–26, 1964. Proceedings, Vol. II, pp. 812–813.

2110—HUGONOT, R. & DELONS, S., 1966. "Étude clinique au Maroc du CIBA 32644-Ba. (Ambiase et bilharziose)." *Acta trop.*, Suppl. 9, pp.110–119. [English summary pp.118–119. Discussion p.120.]

2855—BAIN, O., 1967. "Diversité et étroite spécificité parasitaire des filaires de chauves-souris, confondues sous le nom de *Litomosa filaria* (van Beneden, 1872)." *Bull. Mus. natn. Hist. nat., Paris*, 2e série, Year 1966, 38 (6), 928–939.

3 new species of *Litomosa* are described, namely, *L. beaucournui* n.sp. from *Miniopterus schreibersi* (type host) in France, *Rhinolophus ferrumequinum* in France and Morocco and *Rhinolophus* sp. in France and Algeria, *L. desportesi* n.sp. from *Myotis emarginatus* (type host) in France and *M. myotis* in France and Switzerland, and *L. pujoli* n.sp. from *Hipposideros cyclops* in Central African Republic. These species and *L. filaria* are readily separated by the form of the buccal capsule, the size and appearance of the roughened area ("area rugosa") on the male tail and the form of the female tail. *L. desportesi* has transverse bands in the roughened area of the male tail while other species have tiny bosses. *L. pujoli* has 3 large digitations on the female tail and a distinctive buccal cavity. *L. beaucournui* resembles *L. chiropterum* but it is a smaller species and has a shorter buccal capsule. R.C.A.

572—GUIRAN, G. DE, 1967. "Description de deux espèces nouvelles du genre *Tylenchoryhnchus* Cobb, 1913 (Nematoda: Tylenchinae) accompagnée d'une clé des femelles, et précisions sur *T. mamillatus* Tobar-Jimenez, 1966." *Nematologica*, 13 (2), 117–230. [English summary p. 229.]

Tylenchorhynchus sulcatus n.sp. from soil around the roots of citrus in Rabat, Morocco, resembles *T. microphasmis* but is shorter and has a shorter stylet. *T. sulcatus* was also found about tomato and pepper roots in the Canary Isles. *T. aduncus* n.sp. from vineyards in Montpellier, France, resembles *T. cylindricus* but has a shorter stylet, less developed head sclerotization, a differently shaped tail in the female and a differently shaped gubernaculum in the male. *T. mamillatus* from Morocco is redescribed. A key to the species of *Tylenchorhynchus* is given. 10 species are considered *species inquirendae* D.W.L.

*3654—NEJJAI, B., 1970. [Mass treatment of vesical schistosomiasis in Morocco with 1-(5-nitro-2-thiazolyl)-2-imidazolidinone (niridazole).] "Traitement de masse de la bilharziose vésicle au Maroc par un nouveau produit de synthèse: le 1-(5-nitro-2-thiazolyl)-2-imadazolidinone." *Maroc Médical*, 50 (537), 453–457. [Fr]

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[Case reports of 2 persons in Morocco infected with *Loa loa* who had previously lived in the Congo and Cameroon.]

ANNOTATED BIBLIOGRAPHIES

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